US to plant 1 billion trees as climate change kills forests

Trees are a ‘sink’ for carbon dioxide

By MATTHEW BROWN
Associated Press

BILLINGS, Mont. — The Biden administration said the government will plant more than a billion trees across millions of acres of burned and dead woodlands in the U.S. West, as officials struggle to counter the increasing toll on the nation’s forests from wildfires, insects and other manifestations of climate change.

Destructive fires in recent years that burned too hot for forests to regrow naturally have far outpaced the government’s capacity to plant new trees. That has created a backlog of 4.1 million acres in need of replanting, officials said.

The U.S. Department of Agriculture said it will have to quadruple the number of tree seedlings produced by nurseries to get through the backlog and meet future needs. That comes after Congress last year passed bipartisan legislation directing the U.S. Forest Service to plant 1.2 billion trees over the next decade and after President Joe Biden in April ordered the agency to make the nation’s forests more resilient as the globe gets hotter.

Much of the administration’s broader agenda to tackle climate change remains stalled amid disagreement in Congress, where Democrats hold a razor-thin majority. That has left officials to pursue a more piecemeal approach with incremental measures such as Monday’s announcement, while the administration considers whether to declare a climate emergency that could open the door to more aggressive executive branch actions.

To erase the backlog of decimated forest acreage, the Forest Service plans over the next couple years to scale up work from about 60,000 acres replanted last year to about 400,000 acres annually, officials said. Most of the work will be in Western states where wildfires now occur year round and the need is most pressing, said David Lytle, the agency’s director of forest management.

Blazes have charred 5.6 million acres so far in the U.S. this year, putting 2022 on track to match or exceed the record-setting 2015 fire season, when 10.1 million acres burned.

Many forests regenerate naturally after fires, but if the blazes get too intense they can leave behind barren landscapes that linger for decades before trees come back.

“Our forests, rural communities, agriculture and economy are connected across a shared landscape and their existence is at stake,” Agriculture Secretary Tom Vilsack said in a statement announcing the reforestation plan. “Only through bold, climate-smart actions ... can we ensure their future.”

The Forest Service this year is spending more than $100 million on reforestation work. Spending is expected to further increase in coming years, to as much as $260 million annually, under the sweeping federal infrastructure package approved last year, agency officials said.

Some timber industry supporters were critical of last year’s reforesting legislation as insufficient to turn the tide on the scale of the wildfire problem. They want more aggressive logging to thin stands that have become overgrown from years of suppressing fires.

To prevent replanted areas from becoming similarly overgrown, practices are changing so reforested stands are less dense with trees and therefore less fire prone, said Joe Fargione, science director for North America at the Nature Conservancy.

But challenges to the Forest Service’s goal remain, from finding enough seeds to hiring enough workers to plant them, Fargione said.

Many seedlings will die before reaching maturity due to drought and insects, both of which can be exacerbated by climate change.

“You’ve got to be smart about where you plant,” Fargione said. “There are some places that the climate has already changed enough that it makes the probability of successfully reestablishing trees pretty low.”

Living trees are a major “sink” for carbon dioxide that’s driving climate change when it enters the atmosphere, Fargione said. That means replacing those that die is important to keep climate change from getting even worse.

Congress in 1980 created a reforestation trust that had previously capped funding — which came from tariffs on timber products — at $30 million annually. That was enough money when the most significant need for reforestation came from logging, but became insufficient as the number of large, high intensity fires increased, officials said.

Insects, disease and timber harvests also contribute to the amount of land that needs reforestation work, but the vast majority comes from fires. In the past five years alone, more than 5 million acres were severely burned.

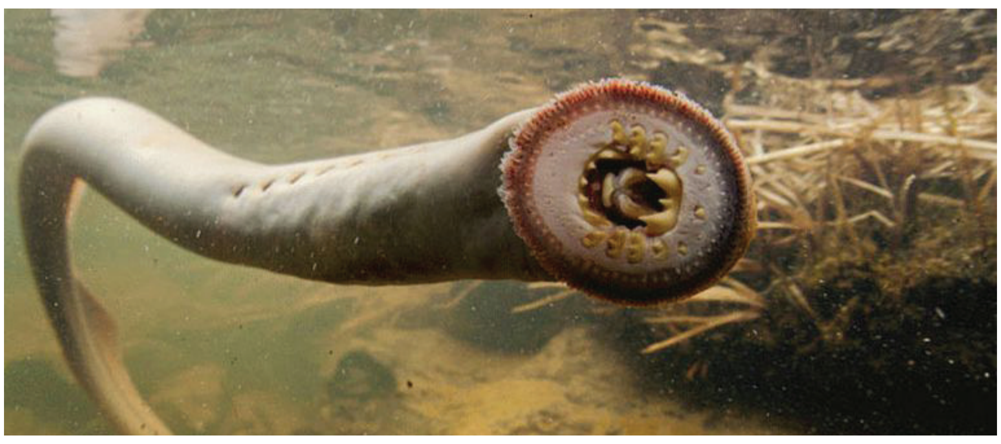
Carlos Avila Gonzalez/San Francisco Chronicle

Destructive fires in recent years that burned too hot for forests to quickly regrow have far outpaced the government’s capacity to replant trees.

Scientists use tiny tags to learn how young lamprey travel through dams

Little is known about life cycle

By COURTNET FLATT
Northwest News Network



Dave Herasimtschuk/U.S. Fish and Wildlife Service

An adult Pacific lamprey.

Lamprey have been around for more than 450 million years before dinosaurs roamed the earth. The eel-like fish survived ice ages and heat waves.

Now, they aren’t doing well, and scientists don’t know exactly why, but they do know lamprey have struggled getting around large concrete dams in the Pacific Northwest.

The Pacific lamprey are culturally important to Northwest tribes. In addition, young lamprey help filter river water as they feed on algae in the sediment. After adult lamprey die, their bodies provide key nutrients to river ecosystems.

Scientists know very little about the lamprey life cycle, including how young Pacific lamprey pass through dams.

“The more we can learn about lamprey as they’re passing through dams, that’s kind of the big black box right now,” said Bob Mueller, an earth scientist with Pacific Northwest National Laboratory.

However, that lack of knowledge could soon change with the innovation of tiny batteries that will allow scientists to track the young gray, toothy fish as they migrate to the ocean.

“This is the very first acoustic telemetry study with juvenile Pacific lamprey on the main stem of the Columbia River system,” said Kate Deters, an earth scientist with the lab.

With this study, scientists hope to learn more about the behavior and survival of these young lamprey as they pass through dams on the Snake River.

“In the past, the tags just haven’t been small enough to tag in these very small fish,” she said.

Gobs of information

In addition, this transmitter provides gobs of information about where each fish passes through the dams, from the spillway to bypass systems to through the turbines. Moreover, Deters said, scientists might learn more about where lamprey like to travel within the river, like how close they swim to the bank.

The tag that’s gathering this information is powered by a tiny battery, said Daniel Deng, a lab fellow. This microbattery took roughly three years to develop, building on years of earlier mircobattery work. The battery for these tags lasts about 30 days when the transmitter sends information every five seconds, Deng said. In that time, it will help gather invaluable information, he said. New designs scientists are working on should improve the battery life, Deng said.

“Hopefully, we can provide some good information for policymakers and other stakeholders, so they can use this information to have even better dam operations,” Deng said.

Hydropower dams on the Columbia River system have been fine-tuned for salmon, said Steve Juhnke, a fish biologist project manager with the U.S. Army Corps of Engineers. However, those fish passage have sometimes neglected other anadromous fish, such as lamprey, and resident fish, such as American shad, he said.

“It’s encouraging to get to the point where you can include those fish in your studies and consider them in the operations of the project,” Juhnke said.

Moreover, he said, lamprey are poor swimmers, which makes it a challenge for them to migrate downstream, as well as for adult fish to swim up ladders.

“There have been a lot of assumptions made about juvenile lamprey in the past, and now we’re able to either prove or disprove those assumptions,” Juhnke said.

One of those assumptions includes the water depths that lamprey migrate in the river, he said.

Information from this study will help the Army Corps improve lamprey passage if possible, he said. This pilot project cost around $1.1 million, he said. The Army Corps plans to fund this project for up to four more years, moving around to study different dams, he said, each of which have unique passage challenges.

A first food

It’s been a long road studying these fish in the natural environment. For Northwest tribes, years of studying lamprey have helped shine a light on these culturally important fish, often called eels.

Lamprey are a first food, said Aaron Jackson, the lamprey project leader for the Confederated Tribes of the Umatilla Indian Reservation.

“Lampreys are, in my mind, the first food,” Jackson said. “I’ve had them grilled. I’ve had them smoked over cherry wood. I even have a friend who has made lamprey pate with them. That’s quite good.”

Jackson called lamprey a unique and acquired taste, with a high lipid content and lots of oil, similar to mackerel.

Indigenous people used to eat lamprey often for nourishment, he said. Now, the fish are far less abundant.

The Confederated Tribes of the Umatilla Indian Reservation now harvests mostly at Willamette Falls instead of all throughout its ceded lands in northeastern Oregon and southeastern Washington and at Celilo Falls, before the construction of The Dalles Dam flooded the historic fishing area and marketplace, Jackson said.

“Getting these lamprey back up into these areas that they once were will provide those increased harvest opportunities for tribes and that cultural and traditional connection that has been missing for quite some time,” Jackson said.

It will take a lot of work to attain sustainable and harvestable populations of lamprey. To start, tribes have translocated adult lamprey from the lower Columbia River hundreds of miles to waterways that historically supported lamprey, such as the Umatilla River.

Those adults spawn, and their offspring need to make it past dams and to the ocean.

That’s why it’s important to learn more about how these young lamprey swim downstream, Jackson said.

“This tagging effort helps us identify potential problem areas, and it helps us understand the scale and the magnitude and location, so we can identify fixes that are needed,” he said.

‘THIS TAGGING EFFORT HELPS US IDENTIFY POTENTIAL PROBLEM AREAS, AND IT HELPS US UNDERSTAND THE SCALE AND THE MAGNITUDE AND LOCATION, SO WE CAN IDENTIFY FIXES THAT ARE NEEDED.’

Aaron Jackson | lamprey project leader for the Confederated Tribes of the Umatilla Indian Reservation

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